

REMARKS

Favorable reconsideration of this application in view of the above amendments and the following remarks is respectfully requested. By this amendment, claims 1, 2, 10, 19, and 20 have been amended to more clearly claim the subject invention. Applicant submits that no new matter has been added, and notice to that effect is respectfully solicited. Claim 5 has been canceled without prejudice or disclaimer. Currently, claims 1-4 and 6-23 are pending of which claim 1 is independent.

Claims 1-5, 10, 11, 16, 19, 22, and 23¹ were rejected under 35 USC 102(b) as anticipated by Toyonaga et al. (U.S. Patent No. 4,859,496). Claims 6-9, 14, 15, 17, and 18 were rejected under 35 USC 103(a) as unpatentable over Toyonaga '496 in view of Koide (U.S. Publication No. 2001/0023052) and Engelking (U.S. Patent No. 4,385,388). These rejections are respectfully traversed.

Toyonaga '496 describes a method of producing an electrically-conductive transparent film in which a substrate contacts a stream of reactive gas. The reactive gas includes a tin compound, oxygen, and an impurity material that enhances the conductivity of the film being produced. The surface of the substrate is then partially irradiated by a laser beam, and the reactive gas that contacts the laser beam projected portion of the substrate surface decomposes and deposits on the laser beam projected portion of the substrate to form a high-conductivity transparent film of tin oxide on that portion of the substrate. Further, in Toyonaga '496, above a deposition temperature, deposition occurs anywhere on a substrate. However, below a first temperature, no deposition takes place. In the range between the first temperature and the deposition temperature, deposition is achieved locally by increasing the temperature by a laser.

¹ The Office Action specifies that claims 1-5, 10, 11, 16, 19, 22, and 23 were rejected under 35 USC 102(b) as anticipated by Toyonaga '496. However, the Examiner's comments in the Office Action also treat claims 12, 13, 20, and 21 as being rejected under 35 USC 102(b) as anticipated by Toyonaga '496.

The deposition rate depends on the concentration of gas, the intensity of the laser beam, the temperature of the substrate, and the gas injection pressure.

The present invention relates to a method for patterned metallization of a surface of a substrate. In one aspect, as described in independent claim 1, the method includes preheating the substrate to a temperature below a deposition temperature of a predetermined metal dissolved in a fluid provided above the surface of the substrate, performing patterned deposition of the predetermined metal in predetermined regions on the surface of the substrate at a starting metallization by locally increasing the temperature at the surface of the substrate to above the deposition temperature, and increasing the temperature of the substrate to a second temperature until deposition of the predetermined metal takes place autocatalytically at the starting metallization for forming a metallization having a predetermined metallization thickness, wherein the second temperature is below the deposition temperature.

Toyonaga '496 does not describe or suggest the claimed subject matter. In particular, Toyonaga '496 fails to describe or suggest that preheating the substrate to a first temperature that is below the deposition temperature, locally increasing the temperature of the substrate to a temperature above the deposition temperature, and increasing the temperature of the substrate to a second temperature that is below the deposition temperature, as required by claim 1. Further, Toyonaga '496 does not describe that patterned deposition occurs on the surface of the substrate as a starting metallization when the temperature is locally increased above the deposition temperature, and that an autocatalytical process takes place along the starting metallization when the temperature of the substrate is increased to the second temperature that is below the deposition temperature, as recited in amended claim 1. Rather, Toyonaga '496 notes problems with deposition when the temperature is above the deposition temperature and fails to mention autocatalytical deposition.

Further, in the present invention, a starting metallization catalyzes a further deposition of metal in the area close to the starting metallization so that, at a temperature lower than the deposition temperature, metal is deposited along the starting metallization and no metal is

deposited in the other areas since the other areas require at least the deposition temperature for deposition to occur. Toyonaga '496 lacks any such teaching or suggestion.

Therefore, Toyonaga '496 alone fails to describe or suggest the subject matter of independent claim 1, and claims 2-4 and 6-23, which depend therefrom.

Moreover, neither Koide (U.S. Publication No. 2001/0023052) and Engelking (U.S. Patent No. 4,385,388) overcome at least the above-noted deficiencies. Koide '052 relates to an exposure apparatus for exposing an object to a pattern of a mask by reduction projection with a projection lens using light from a light source. Engelking '388 relates to a method for refereeing the beam wavelength of a tunable laser with a known spectral line wavelength of a free transition metal atom. However, neither Koide '052 nor Engelking '388 overcomes the lack of any teaching or suggestion that patterned deposition occurs on the surface of the substrate as a starting metallization when the temperature is locally increased above the deposition temperature, and that an autocatalytical process takes place along the starting metallization when the temperature of the substrate is increased to the second temperature that is below the deposition temperature in Toyonaga '496. Therefore, Toyonaga '496, even in combination with Koide '052 and/or Engelking '388, fails to describe or suggest the subject matter of claims 6-9, 14, 15, 17, and 18.

Accordingly, withdrawal of these rejections is respectfully requested.

Applicant submits that all pending claims, claims 1-4 and 6-23, are in condition for allowance, and formal notice of such is solicited. If the Examiner has any questions, the Examiner is respectfully requested to contact the undersigned at the number listed below.

It is believed that no fees are required at this time. However, Applicant hereby petitions for any extension of time that may be necessary to maintain the pendency of this application.

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The Commissioner is hereby authorized to charge payment of any additional fees required for the above-identified application or credit any overpayment to Deposit Account No. 05-0460.

Respectfully submitted,



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